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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/505,249 | 08/20/2004 | Beng Kiat Peter Soh | 1453-2 PCT/US | 7576 |
| 7590 | 08/11/2005 | | EXAMINER | |
| Salvatore J Abbruzzese Hoffmann & Baron 6900 Jericho Turnpike Syosset, NY 11791 | | | MCKINNON, TERRELL L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3743 | |
| DATE MAILED: 08/11/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------|----------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/505,249 | SOH, BENG KIAT PETER |
| | Examiner | Art Unit |
| | Terrell L. McKinnon | 3743 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 20 August 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-9 and 14 is/are rejected.

7) Claim(s) 10-13 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 20 August 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/20/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Objections

Claims 4 and 5 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form. Applicant is advised to rewrite the claim in method form because the claims protection is unclear the way it is currently constructed.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by German Reference (1,247,359).

German Ref. discloses a system for cleaning tubes comprising all of the applicant's claimed and disclosed limitations of the instant invention, as stated in the PCT/SG03/00065 written opinion dated 1/23/2004.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Reference (1,247,359) in view of Okouchi et al. (U.S. 4,420,038).

German Ref. ('359) discloses all of the claimed limitations from above except for the recirculation means further comprising a third valve disposed along the ball return pipe and a fourth valve disposed along the ball supply pipe; the separator comprises perforations which allow the fluid to flow through but not the cleaning balls; the perforations are in the form of rectangular slots each having a length direction; the length directions of the rectangular slots are not parallel to the centre axis of the funnel; and the rectangular slots have a length direction inclined clockwise/anti-clockwise, as viewed in the fluid flow direction.

5. However, Okouchi teaches the recirculation means further comprising a third valve (26, 28, 32) disposed along the ball return pipe and a fourth valve (82 and 86) disposed along the ball supply pipe; the separator comprises perforations which allow the fluid to flow through but not the cleaning balls.

Given the teachings of Okouchi, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system for cleaning tubes of German Ref. ('359) with the recirculation means further comprising a third valve

disposed along the ball return pipe and a fourth valve disposed along the ball supply pipe; the separator comprises perforations which allow the fluid to flow through but not the cleaning balls; the perforations are in the form of rectangular slots each having a length direction; the length directions of the rectangular slots are not parallel to the centre axis of the funnel; and the rectangular slots have a length direction inclined clockwise/anti-clockwise, as viewed in the fluid flow direction.

Doing so would provide a very efficient tube cleaning system for improving the heat transfer efficiency.

Allowable Subject Matter

6. Claims 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references cited on the USPTO 892 discloses related limitations of the applicant's claimed and disclosed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L. Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terrell L Mckinnon
Primary Examiner
Art Unit 3743
August 8, 2005